

**Abstract**

A data structure, tangibly embodied in a computer-readable medium, representing a polymer of chemical units is disclosed. The data structure includes an identifier including a plurality of fields for storing values corresponding to properties of the polymer. In one  
5 embodiment, the fields are capable of storing binary values. The polymer may, for example, be a polysaccharide and the chemical units may be saccharides. Also disclosed is a computer-implemented method for determining whether properties of a query sequence of chemical units match properties of a polymer of chemical units. The query sequence is represented by a first data structure, tangibly embodied in a computer-readable medium,  
10 including an identifier including a plurality of bit fields for storing values corresponding to properties of the query sequence. The polymer is represented by a second data structure, tangibly embodied in a computer-readable medium, including an identifier including a plurality of bit fields for storing values corresponding to properties of the polymer. The method includes steps of generating at least one mask based on the values stored in the bit  
15 fields of the first data structure; performing at least one binary operation on the values stored in the bit fields of the second data structure using the at least one mask to generate at least one result; and determining whether the properties of the query sequence match the properties of the polymer based on the at least one result. The invention also involves a notational system referred to as Property Encoded Nomenclature.